

Work Order ID 140089

140089

Page 1

Thursday, December 17, 2015 3:42:17 PM

Item ID: D6101-005

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Saddle Billet

Start Date: 12/17/2015 Start Qty: 20.00

20

Cust Item ID:

Required Date: 12/17/2015 Req'd Qty: 20.00

20

Customer:

Reference:

Approvals:

Process Plan: ML3

Date: DEC 22 2015

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D6101

Rev B

100

0.00

100

PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O:

a) Description: Alluminum billet

b) 5.00" x 8.250" x 2.50" thick

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Grain direction along 5.00" length

e) Material: 7075-T7351 (QQ-A-250/12)

f) Material certification required

6.15.12.23

110

Receive & Inspect for Damage & Mat'l Certs

0.00

110

Packaging

Memo

0.01

Packaging

Ensure material certification is attached

20X
15X SP 16-6-11

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order ID 140089***140089***

Page 2

Thursday, December 17, 2015 3:42:17 PM

Item ID: D6101-005 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle Billet
Start Date: 12/17/2015 Start Qty: 20.00 ***20*** Cust Item ID:
Required Date: 12/17/2015 Req'd Qty: 20.00 ***20*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC6- Inspect dimensions to drawing Memo Ensure Material certification comply to Dwg D6101	0.00 0.00				<u>20</u>	<u>0</u>		DAS 14 9-89 16/01/12
130 *130* Packaging Packaging	Identify as per dwg & Stock Location: <u>MAT041</u> Memo LOCATION: MAT041	0.00 0.00				<u>20</u>	<u>0</u>		DAS 14 9-89 16/01/12
140 *140* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.03				<u>ML5</u>		JAN 13 2016	

ML5

JAN 13 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____							
Misidentified ☐	☐ Past Due								

Picklist Print

Thursday, December 17, 2015 3:42:16 PM

Page 1/1

Work Order ID: 140089

140089

Parent Item: D6101-005

D6101-005

Parent Item Name: Saddle Billet

Start Date: 12/17/2015

Required Date: 12/17/2015

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP A: 01.05.04New IssueC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-005P		Purchased	No			110	Each	0.0000	1	20.00			
D6101-005P										**	2016-01-11		
7075-T7351 8.25X5.0X2.5													

SP/16-01-11

DQA: _____ Date: _____



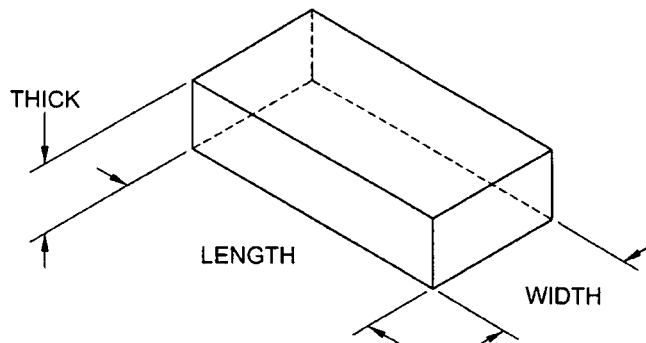
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																																																																																																
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: left;">Root Cause</th> <th colspan="6" style="text-align: left;">FAULT CATEGORY</th> </tr> </thead> <tbody> <tr> <td>Environment ☐</td> <td>☐</td> <td>No Re-verification ☐</td> <td>Pressure/Forced ☐</td> <td>☐</td> <td>Temperature/Cure ☐</td> <td>☐</td> <td>Power Loss/Surge ☐</td> <td>☐</td> <td>Positioned Wrong ☐</td> </tr> <tr> <td>Design ☐</td> <td>☐</td> <td>Operator ☐</td> <td>Bending ☐</td> <td>☐</td> <td>Set-up ☐</td> <td>☐</td> <td>Folio/Program ☐</td> <td>☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>☐</td> <td>Offset/Setup ☐</td> <td>Centre Not Concentric ☐</td> <td>☐</td> <td>BOM/Route ☐</td> <td>☐</td> <td>Grain ☐</td> <td>☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>☐</td> <td>Supplier ☐</td> <td>Cracks ☐</td> <td>☐</td> <td>Broken/Damage/Defect ☐</td> <td>☐</td> <td>Weld ☐</td> <td>☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>☐</td> <td>Training ☐</td> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>☐</td> <td>Wrong Stock Pulled ☐</td> <td>☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Material ☐</td> <td>☐</td> <td>Use for Testing ☐</td> <td>Cuffs ☐</td> <td>☐</td> <td>Contamination ☐</td> <td>☐</td> <td>Out of Sequence ☐</td> <td>☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>☐</td> <td>Poor Information ☐</td> <td>Crushing ☐</td> <td>☐</td> <td>Countersink ☐</td> <td>☐</td> <td>Off-set ☐</td> <td>☐</td> <td>Drawing ☐</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>☐</td> <td>Rushing ☐</td> <td>Heat Treat ☐</td> <td>☐</td> <td>Cut Too Short ☐</td> <td>☐</td> <td>Mislabeled ☐</td> <td>☐</td> <td>Finish ☐</td> </tr> <tr> <td>LOA ☐</td> <td>☐</td> <td>Product Improvement ☐</td> <td>Wave/Twist in Tube ☐</td> <td>☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>☐</td> <td>Fit/Function ☐</td> <td>☐</td> <td>Misread ☐</td> </tr> <tr> <td>Substation ☐</td> <td>☐</td> <td>Process Improvement ☐</td> <td>Marks/Chatter ☐</td> <td>☐</td> <td>Drill Holes ☐</td> <td>☐</td> <td>Misaligned/off center ☐</td> <td>☐</td> <td>Turning Sequence ☐</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>☐</td> <td>Manufacturing Process ☐</td> <td colspan="7" rowspan="2" style="vertical-align: top;">OTHER : _____</td> </tr> <tr> <td>Misidentified ☐</td> <td>☐</td> <td>Past Due ☐</td> </tr> </tbody> </table>										Root Cause				FAULT CATEGORY						Environment ☐	☐	No Re-verification ☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐	Power Loss/Surge ☐	☐	Positioned Wrong ☐	Design ☐	☐	Operator ☐	Bending ☐	☐	Set-up ☐	☐	Folio/Program ☐	☐	Outside Dimensions ☐	Doc/Data ☐	☐	Offset/Setup ☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐	Grain ☐	☐	Over/Under tolerance ☐	Equip/Tooling ☐	☐	Supplier ☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐	Weld ☐	☐	Part Incorrect ☐	Handling/Pre ☐	☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐	Wrong Stock Pulled ☐	☐	Part Lost/Missing ☐	Material ☐	☐	Use for Testing ☐	Cuffs ☐	☐	Contamination ☐	☐	Out of Sequence ☐	☐	Part Moved ☐	Internal Transport ☐	☐	Poor Information ☐	Crushing ☐	☐	Countersink ☐	☐	Off-set ☐	☐	Drawing ☐	Tribal Knowledge ☐	☐	Rushing ☐	Heat Treat ☐	☐	Cut Too Short ☐	☐	Mislabeled ☐	☐	Finish ☐	LOA ☐	☐	Product Improvement ☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐	Fit/Function ☐	☐	Misread ☐	Substation ☐	☐	Process Improvement ☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐	Misaligned/off center ☐	☐	Turning Sequence ☐	Past Expiry Date ☐	☐	Manufacturing Process ☐	OTHER : _____							Misidentified ☐	☐	Past Due ☐
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SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
N140085 MLS
15-12-22

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

RELEASED
09/10/15/WP

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO30837**

Purchase Order Date 12/23/2015 1:14:21 PM

PO Print Date 12/23/2015

Page Number 1 of 2

Order From :

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W 0E9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

Contact Name

Vendor Phone

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

USD

FOB

Destination-Collect

Ship To Contact

Ship To Phone

Ship Via:

Yours ppd

Ship Acct:

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
----------	---	------------------------	--------------------------------------	----	--------------------------------	---------------	-------------------

2	D6101-005P	7075-T7351 8.25X5.0X2.5	1/15/2016 Yes 1/15/2016		20.00 Each	\$36.20	\$724.00
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AS PER DWG.D6101 REV.B
B140089
SIZE: 5.00" X 8.250" X 2.50" THICK
GRAIN DIRECTION ALONG 5.00" LENGHT
MATERIAL: 7075-T7351 QQ-A-250/12
TOLERANCE AS PER QUOTE +.030"/-.000"

Rec'd 15x
SP/6-01-11

Line Total: \$724.00

5	71401-45	PROCUREMENT QUALITY CLAUSES	1/15/2016 No 1/15/2016		1.00	\$0.00	\$0.00
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Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

Note:

12/23/2015

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:2841270

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped 07-JAN-16	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOULIN	BOL No 2841270-2

Shipment Details

Final Destination Branch - TOR

Order No 4187113	Line No 1	Item No 752241.MO	Description 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN (+ .0310/- .0000 IN (GRAIN TO RUN-ALONG 5")) ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12 EMAIL PACKING SLIP & TEST REPORT TO: clavoie@dartaero.com				
Purchase Order No 30837	Part Number YOUR ITEM NUMBER: D6101-005		Ordered Qty 20.00 PCS		Invoice Qty 20.00 PCS		
Details			ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S PACKING SLIP & TEST REPORT MUST BE DELIVERED WITH MATERIAL EMAIL PACKING SLIP & TEST REPORT TO: clavoie@dartaero.com SHIP TO CASTLE, TORONTO (MISSISSAUGA) CUSTOMS BROKER: GEORGE H. YOUNG END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS				
Delivery No. 120294544	Mill KAISER ALUMINUM	Heat Number 	Mech Id	PCS 15	Width (IN)	Length (IN)	Shipped Qty(LBS) 159.9841

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.
Date Printed: 07-JAN-2016 04:51:14 PM



Castle Metals®

A. M. Castle & Co.

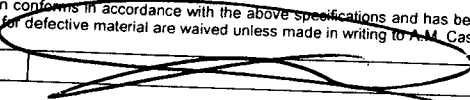
PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

120294544	KAISER ALUMINUM		5			53.3280
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These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size by material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:  Date: Name:



JAN 07 2016

Handwritten signature/initials

SHIP TO:

A M CASTLE & CO
3050 SOUTH HYDRAULIC
WICHITA, KS 67216

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

SOLD TO:

AM CASTLE & CO- SOLD TO
1420 KENSINGTON RD
SUITE 220
OAK BROOK, IL 60523

Serial Number

4398016

CUSTOMER PO NUMBER: 341869		WORK PACKAGE:		CUSTOMER PART NUMBER: 752241		SHIP RUN/LOAD: 103394/15		GOV'T CONTRACT NUMBER:		
KAISER ORDER NO: 1197985		LINE ITEM: 1	SHIP DATE: 21-NOV-2015		ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: KaiserSelect Plate		
WEIGHT SHIPPED: 7200 LB		QUANTITY: 4 PCS EST.		TRUCK B/L #: 2057130		GAUGE: 2.5000 IN (63.5000 MM)		DIAMETER/WIDTH: 48.500 IN (1231.9 MM)		LENGTH: 144.500 IN (3670.3 MM)

MHU 1943636: LOT 151339B9: 2 pieces;

MHU 1943637: LOT 151339B9: 1 pieces;

MHU 1945222: LOT 151460B3: 1 pieces;

DAS
14
9-89

16/01/12

Certified Specifications

AMS 4078/RevJ
ASTM B 209/Rev14
BSS 7055/RevB
DPS 4.713/RevAK
MMS 159/RevT

AMS-QQ-A-250/12/RevA
ASTM B 594/Rev13
CMMP 026/RevU
GAMPS 9101/RevB/AmdSCN1
PS 21211/RevM

AMS-STD-2154/RevA
BAC 5439/RevJ
CSTI 006/RevE
GSS16100/RevG/Amd1

Test Code: 4297

Test Results

Lot: 151339B9

Cast 885

Drop 43

Ingot 2

Melted in USA

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	69.1 : 69.6 (476 : 480)	57.7 : 58.4 (398 : 403)	11.7 : 12.2

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.7 Min	40.8 Max
(MS/M) :	23.6 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.09	0.18	1.5	0.05	2.5	0.20	6.7	0.03	0.01	0.01	TOT 0.05



KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4398016

Lot: 151460B3 Cast 885 Drop 54 Ingot 3 Melted in USA

(ASTM E8/B567)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.8 : 72.0 (488 : 496)	59.8 : 61.4 (412 : 423)	11.8 : 11.8

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.1 Min	40.2 Max
(MS/M) :	23.3 Min	23.3 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.09	0.18	1.5	0.07	2.5	0.19	5.8	0.03	0.01	0.01	TOT 0.05

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-15413B R 6
AMS 4078, AMS QQ-A-250/12, AMS STD-2154, A
STM B209, ASTM B594, BS
S 7055, CMMP 026, CSTI 006, DPS 4.713, GAMP
S 9101, MMS 159, PS 212

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TEST NOTES

Metal represented by this test report was 100% immersion ultrasonically tested from one side with 3mm dead zones top and bottom and meets the Class A and Class B requirements of all specifications referenced on this test report. No surface marking of sonic indications is performed.





Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4398016

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC (Kaiser), is ISO-9001:2008/AS9100C certified and hereby certifies that all material shipped under this order:

- has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements.
- was melted in the United States of America or a qualifying country per DFARS 225.872-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.
- has been thermally processed in compliance with AMS 2772, where applicable.
- is mercury free, within the limits of detection of ASTM E1251 (< 1 ppm).
- is in compliance with RoHS 2, European Union Directive 2011/65/EU.
- is in compliance with and regularly monitors any updates to the European Chemical Agency, ECHA, REACH regulations, (EC) n° 1907/2006.
- is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be disclosed except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under Federal law.

JAMES HEMENWAY, LABORATORIES SUPERVISOR



MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6101-005

PO / BATCH NO.: 30837/140089

DATE: 16/01/12

MATERIAL CERT REC'D: yes

QUANTITY RECEIVED: 20

QUANTITY INSPECTED: 20

QUANTITY REJECTED: _____

THICKNESS ORDERED: 5.00x8.250x2.50

THICKNESS RECEIVED: 5.00x8.250x2.520

SHEET SIZE ORDERED: _____

SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒ N	
CORRECT FINISH	☒ Y	N	
CORROSION	Y	☒ N	
CORRECT GRAIN DIRECTION	☒ Y	N	
CORRECT MATERIAL	☒ Y	N	
CORRECT THICKNESS	☒ Y	N	
PHOTO REQUIRED	Y	☒ N	
CORRECT MATERIAL	☒ Y	N	
CORRECT REF # TO LINK CERT	☒ Y	N	
CORRECT MATERIAL IDENTIFICATION	☒ Y	N	
CORRECT M# ON THE MATERIAL	☒ Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK.
RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D	
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION

ENGINEERING SIGNOFF (if required)

INSPECTED BY: DAS

SIGNED OFF BY: _____

DATE: 16/01/12

DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

- 1- VERIFY STOCK TO DART PURCHASE ORDER
- 2- MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
- 3- VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc.
- 4- VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
- 5- VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
- 6- REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

- 1- VERIFY TO DART SUPPLIED DRAWING
- 2- SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
- 3- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
- 4- VERIFY THAT MATERIAL CERTS MATCH TO WHAT'S CALLED UP ON THE DART DRAWING

AFTER MATERIAL PASSES INSPECTION

- 5- HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20pcs FOR FULL INSPECTION
- 6- INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

- 1- VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
- 2- INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
- 3- INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
- 4- IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE2 ...) AND W/O# AND PO#
- 5- RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER